DOCUMENT RESUME

ED 312 558 CG 022 055

AUTHOR Ridley, Jeanne Clare; Gruber, Kerry Johnson
TITLE Representatives and Response Rates of a Follow-Up Sample for a Health Survey.
SPONS AGENCY National Inst. on Aging (DHHS/PHS), Bethesda, MD.
PUB DATE Nov 88
CONTRACT HD-62818
GRANT AG06207
NOTE 18p.; Paper presented at the Annual Meeting of the American Public Health Association (116th, Boston, MA, November 13-17, 1988).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Females; *Followup Studies; *Longitudinal Studies; *Older Adults; *Research Methodology; Research Problems; *Sampling

ABSTRACT

A crucial question in any study is how representative the sample is of the population being studied at the time of the interview. This is of particular concern when the study is based on a follow-up of a sample of respondents initially interviewed for other purposes. This study evaluated the representativeness of a sample of elderly female respondents (N=1,049) interviewed in 1978 by comparing the characteristics of the sample with the characteristics of a similar group included in the March 1987 Current Population Survey (CPS) conducted by the Bureau of the Census. The CPS was used since it is a larger sample than the one analyzed and estimates derived from the CPS are more stable and subject to less sampling error. The original sample was designed to represent white, ever married women born from 1901-1910. Of the original sample of 1,049 women, only 2.9 percent could not be located, with 29.3 percent having died and 6.1 percent residing in nursing homes. The total response rate for the 1987 follow-up sample was 79.4 percent with 589 interviewed of 742 eligible. The results indicated there were a number of strengths and weaknesses. Since the 1987 household sample was not as representative nationally by region and age as the 1978 sample was and underrepresented women in central cities, care will have to be taken in drawing inferences from it regarding health of elderly women and their social support networks. However, the results indicated that it is possible to successfully follow-up the elderly even after a relatively long period. The response rates obtained are impressive when compared with other studies involving the follow-up of respondents and indicates that longitudinal studies of the elderly can be successful. Further, the detailed data obtained on the health, functioning and social support of such a sample should make important contributions to future studies and lay the basis for developing better policies for an aging population. (ABL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED312558

REPRESENTATIVES AND RESPONSE RATES OF A FOLLOW-UP SAMPLE FOR A HEALTH SURVEY

Jeanne Clare Ridley,*

Kerry Johnson Gruber,*

*Georgetown University

CG022055

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Jeanne Clare Ridley

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Paper prepared for presentation at the 116th Annual Meeting of the American Public Health Association, Boston, November 1988. This research was supported in part by a grant from the National Institute on Aging, AG06207. Data of the 1978 survey were collected under Contract HD-62818, National Institute of Child Health and Human Development.

BEST COPY AVAILABLE

A crucial question in any study is how representative the sample is of the population being studied at the time of interview. This is of particular concern when the study is based on a follow-up of a sample of respondents initially interviewed for other purposes. The question of representativeness is somewhat a neglected one in the reporting of survey methodology. Usually, researchers are content to describe the total response rate and the type of sampling methodology employed as, for example, whether the sample is an area probability sample. Even the best sampling techniques, however, do not insure a good sample. While response rates are very important, in that a low response rate signals the presence of bias in a sample, an investigation of the response rate alone does not indicate that a sample is truly representative of the population that it is designed to represent.

In this paper, we report on an evaluation of the representativeness of a sample of elderly female respondents interviewed in 1987 by comparing the characteristics of the sample with the characteristics of a similar group included in the March 1987 Current Population Survey (CPS) conducted by the Bureau of the Census. Ideally, we would like to assess the representativeness of our sample with a complete census of the population our sample should represent. Lacking this, we relied on the CPS sample. Since the CPS sample is a much larger sample than the one we are employing in our analysis, estimates derived from the CPS sample are more stable and subject to less sampling

error. Because the sample we are evaluating is a follow-up of a sample first interviewed in 1978, we begin with a discussion of the design of the original sample and its representativeness.

THE ORIGINAL SAMPLE

The 1978 sample was designed to represent white, ever married women belonging to the birth cohorts of 1901-1910, (i.e. born between July 1, 1900 and June 30, 1910). At the time of the interview in 1978, the women were 67-77 years of age. Excluded from the sample were women residing in institutions (less than five percent), women marrying for the first time after attaining age 45 and foreign born women who migrated to the United States after reaching age 30. These restrictions on the sample, it should be noted, were imposed because the objective of the original survey was to study the reproductive patterns of women belonging to the birth cohorts of 1901-1910.

The follow-up survey focuses on the health and social support systems of these women. Thus, generalizations to all elderly white women in 1987 are restricted to some extent.

The 1978 survey was a multistage probability sample of women of the above characteristics residing in households of the coterminous United States. To locate women meeting the eligibility requirements, 27,579 housing units were assigned to interviewers for household screening. Table 1 shows the final disposition of these housing units. Slightly more than 3,300 were found to be vacant, not a housing unit or outside the sampling unit boundaries. Screening interviews were attempted

with the remaining 24,193 housing units for purposes of identifying women meeting the sample criteria. The screening response rate was 98.6. Of the women identified as eligible in the household screening, interviews were successfully carried out with 1049 women. The final interview response rate was 71.6 and completion rate was 70.6 (i.e., 71.6 x 98.6). Thus, there were 1049 women eligible, if surviving, for reinterview in the 1987 follow-up survey.

The representativeness of the 1978 sample was assessed by carrying out a comparison of the sample with the March 1978 Current Population Survey (CPS). The estimates from the CPS were derived from tabulations of the Public Use Computer Tape of that survey. The results of this comparison are shown in Table 2. It was not possible to restrict the CPS data to only women meeting the 1978 sample criteria since the requisite data were not available in the CPS sample and thus only a limited number of comparisons could be carried out.

This comparison indicated that the 1978 sample under represented women residing in the Northeastern region and over represented women residing in the Midwest. The largest under representation was for women residing in central cities of metropolitan areas with an over representation of residents living outside of the central cities of metropolitan areas and non metropolitan areas. The comparison of the 1978 sample with the 1978 CPS on household size, however, indicates a close similarity between the two samples while the comparison by age

indicates a slightly over representation at the youngest ages and under representation at the oldest ages. As might be expected a detailed analysis of response rates reported elsewhere (Ridley et. al. 1979) indicated the observed differentials were reflected in the same groups of women identified as under represented.

Despite some of the differences in the distributions by region of residence, household size and age, these differences between the samples were not statistically significant. However, the difference in the distribution by metropolitan residence was statistically significant. Since current residence was not a variable of interest in the 1978 survey this was not considered a serious bias. However, in a study of the health and social support of elderly women in 1987, this can be a potentially important bias. Unfortunately, metropolitan residence was not coded on the data tape for the 1987 follow-up survey so this variable could not be included in the analysis reported below.

1987 FOLLOW-UP SAMPLE

In Table 3, the results of the follow-up in 1987 of the 1978 sample are presented. Of the original sample of 1049 only 30 women or 2.9 percent could not be located, 29.3 percent had died and 6.1 percent were found to be residing in nursing homes. The decision was made to attempt interviews with women residing in nursing homes but only 38 interviews were obtained from the 64 women residing in nursing homes yielding a response rate of only 59.4. If it is assumed that the 30 women not located were alive and residing in households in 1987 (a conservative assumption)

the response rate for those eligible for an interview among those residing in households is 81.3. By far the major reason for non response was a refusal. If all the nursing home residents are included among eligible women the total response rate for the 1987 follow-up sample is reduced to 79.4 (589 Interviewed 742 Eligible).

These response rates are much higher than have previously been reported for many studies involving the follow-up of previously interviewed respondents in panel studies. For example, in one longitudinal survey of respondents 60 years of age and over residing in households conducted in one county in Michigan in the 1980's the response rates in the second and third follow-ups, conducted one and two years after the initial interviews were 69 and 72, respectively. In a three wave annual panel study of adults conducted in Great Britain at one year intervals between 1984 and 1986 the response rates were 73, 62, and 58, respectively (Waterson and Livesly, 1987). We can only speculate as to the reason for the higher response rate in the 1987 follow-up. It may be the high quality of field procedures followed by the Institute for Survey Research of Temple University that conducted the field work for the 1978 survey and the 1987 follow-up. Another possibility is that a longer period between interviews does not lead to as many refusals. Also, many elderly women may have been flattered that they were remembered after such a long period and efforts made to locate them.

Nevertheless, it should be noted that the cumulative

response rate for the follow-up sample is only 50.9. This rate is based on the 589 interviews obtained in the follow-up in 1987 divided by the 1466 women identified as eligible for interview in 1978 minus the attrition resulting from mortality by 1987. This again is a very conservative estimate since we assume that all non respondents in 1978 would have survived to 1987.

More important, however, for analytic purposes in 1987 is whether the interviews obtained in the follow-up are representative of the population of white ever married women belonging to the birth cohorts of 1901-1910 in 1987. Fortunately, the March 1987 CPS contained data on a larger number of variables than in 1978 for which we can compare the 1987 sample.

Since the CPS sample is a household sample, the comparison is restricted to the 551 respondents residing in households in 1987. A comparison of the 1987 sample shown in Table 4 with the March 1987 CPS indicates that there is an over representation of respondents in the Midwest and a somewhat under representation in the Northeast. Also, owners appear to be markedly under represented, while younger women are over represented and older women under represented. As might be expected, all of these differences are statistically significant. In contrast, many of the differences for social and economic characteristics of the 1987 sample, compared with the CPS sample are minimal and <u>not</u> significant. Only household income is significant. There is a marked over representation of respondents in the lowest income

category of under $10,000 and under representation of respondents in the higher income groups. This, however, may reflect the fact that we did not allocate the cases for whom income was not obtained in the 1987 sample as was done in the CPS sample. While these results are not as reassuring as those obtained for the original 1978 sample, they do indicate that the 1987 sample can be analyzed if care is taken in making generalizations.

CONCLUSIONS

The results of this examination of the representativeness and response rates of a follow-up sample indicate that there are a number of strengths and weaknesses.

The original sample in 1978 was designed to meet different objectives than the objectives of the 1987 study. The exclusions of various groups of women in the initial 1978 sample limit the types of generalizations that can be made regarding the health status and social support of white ever married women in the ages 76 to 86. Since the analysis reported here indicates that the 1987 household sample is not as representative nationally by region and age as the 1978 sample was, great care will have to be made in drawing inferences from it regarding health of elderly women and their social support networks. Further, since the original sample in 1978 was found to under represent respondents residing in central cities, this also indicates the need for caution.

Despite these major weaknesses, this analysis indicates that it is possible to successfully follow-up the elderly even after a

relatively long period. The response rates obtained are indeed impressive when compared with other studies involving the follow-up of respondents and indicates the success that can be achieved in longitudinal studies of the elderly. Further, the detailed data obtained on the health, functioning and social support of such a sample should make important contributions to future studies and lay the basis for developing better policies for an aging population.

REFERENCES

Brown, M.B., D. Lin, D.P. Normolle and A.R. Herzog. 1988. Models for and the effect of non response in a survey of the noninstitutional elderly. Proceedings of the Section on Survey Research Section, American Statistical Association. Alexandria, Va.: American Statistical Association (in press).

Ridley, J.C., D. Dawson, K. Tanfer, and C.A. Bachrach. 1979. An assessment of non response bias. Pp. 353-358 in Proceedings of the Section on Survey Research Methods, American Statistical Association. Washington, D.C.: American Statistical Association.

Waterton, J. and D. Lievesley. 1987. Attrition in a panel study of attitudes. Journal of Official Statistics. 3:267-282.

Table 1. Disposition of 1978 Sample

Disposition of Sample	Number	Percent
Total housing units	27,579	
Vacant, not a housing unit, etc.	3,386	
Housing units eligible for screening interview	24,193	
Housing units not screened	347	
Not at home	67	
Refusal	275	
Language barrier	11	
Housing units screened	23,846	
No eligible women	22,380	
Eligible women	1,466	100.0
Respondents	1,049	71.6
Nonrespondents	417	28.4
Not at home	(39)	(2.6)
Refusal	(313)	(21.4)
Other	(65)	(4.3)

Table 2. Comparison of the 1978 Sample with March,1978,Current Population Survey

Characteristic	1978 Sample	Current Population Survey, March 1978[a]
Region[b]		
Northeast	20.7	24.0
Midwest[c]	34.5	28.2
South	29.5	32.0
West	15.3	15.8
Total	100.0	100.0
Residence[d]		
SMSA		
Central City	17.1	26.0
Outside Central City	43.8	32.7
Non SMSA	39.1	32.9
NA[e]	0.0	8.4
Total	100.0	100.0
Household Size[f]		
One	41.1	40.9
Two	48.3	47.5
Three or more	10.6	11.6
Total	100.0	100.0
Age[g]		
67	1.9	---
68	14.0	11.9
69	10.7	11.5
70	11.5	11.0
71	10.0	11.3
72	9.4	11.0
73	10.8	9.5
74	9.9	8.6
75	9.0	8.9
76	7.1	8.1
77	5.7	8.2
Total	100.0	100.0
Number of Women	1,049	5,880,488

Table 2. (continued)

[a] The estimates are from the Current Population Survey, March, 1978, for white ever married women between 68 and 77 years of age.

[b] Differences between 1978 LFCS and Current Population Survey are not significant at the $\leq .05$ level ($\chi^2 = 2.07$, df = 3).

[c] The Bureau of the Census renamed the North Central Region Midwest in 1984.

[d] Differences are significant at the $p \leq .05$ level ($\chi^2 = 6.6$, df =2). Chi square calculated excluding NA category.

[e] Not ascertained.

[f] Differences are not significant at the $p \leq .05$ level ($\chi^2 = .01$, df = 2).

[g] Differences are not significant at the $p \leq .05$ level ($\chi^2 = 2.2$, df = 9). Chi square calculated excluding 67 age category.

Table 3. Disposition of 1978 Sample for 1987 Follow-Up

Disposition of Sample	Number	Percent
Total 1978 Sample	1049	
Deceased	307	
Total Eligible	742	
Total Eligible Nursing Home Residents	64	100.0
Respondents	38	59.4
Nonrespondents	26	40.6
Refusals	(37)	(4.7)
Other	(23)	(35.9)
Total Eligible Residing in Households	678	100.0
Respondents	551	81.3
Nonrespondents	127	18.7
Refusals	(80)	(11.8)
Others	(17)	(2.5)
Not located	(30)	(4.4)

Table 4. Comparison of the 1987 Household Sample with March, 1987, Current Population Survey

Characteristic	1987 Household Sample	Current Population Survey March 1987[a]
Region[b]		
Northeast	20.7	24.7
Midwest[c]	34.9	27.3
South	30.1	32.4
West	14.3	15.6
Total	100.0	100.0
Tenure[d]		
Owner	62.3	71.5
Renter	26.3	26.1
Other[e]	11.4	2.3
Total	100.0	100.0
Household Size[f]		
One	54.8	54.0
Two	34.1	34.3
>Three	11.1	11.7
Total	100.0	100.0
Age[g]		
76	4.2	2.9
77	15.2	14.1
78	12.5	10.6
79	11.6	11.3
80	12.2	9.9
81	11.1	9.5
82	10.5	10.8
83	8.9	9.8
84	6.0	8.8
85	4.5	7.0
86	3.3	5.3
Total	100.0	100.0

Table 4 (continued)

Characteristic	1987 Household Sample	Current Population Survey March 1987[a]
Marital Status[h]		
Married	25.0	26.6
Widowed	70.8	70.1
Divorced	4.0	2.9
Separated	0.2	0.4
Total	100.0	100.0
Education[i]		
1-7 years	16.3	16.2
8-11 years	43.9	38.3
12 years	22.7	27.2
>12 years	17.1	18.3
Total	100.0	100.0
Household Income[j]		
Under $10,000	62.7	44.7
10,000 - 14,999	13.2	16.9
15,000 - 24,999	14.0	17.7
25,000 - 34,999	6.0	8.4
35,000 +	4.1	12.4
Total	100.0	100.0
Number of Women	551	4,258,970

[a] The estimates are from the PUS, Current Population Survey, March, 1987, for white ever married women between 76 and 87 years of age.

[b] Differences between 1987 sample and CPS are significant at the $p \leq .05$ level ($\chi^2 = 15.10$, df = 3).

[c] The Census Bureau renamed the North Central region as the Midwest in 1984.

[d] Differences between 1987 sample and CPS are significant at the $p \leq .05$ level ($\chi^2 = 206.46$, df = 2).

[e] Other refers to respondents who lived with others and paid no rent.

Table 4. (continued)

[f] Differences are not significant at the $p \leq .05$ level ($\chi^2 = 0.258$, df = 2).

[g] Differences are significant at the $p \leq .05$ level ($\chi^2 = 24.36$, df = 10).

[h] Differences are not significant at the $p \leq .05$ level ($\chi^2 = 3.46$, df = 3).

[i] Differences are not significant at the $p \leq .05$ level ($\chi^2 = 9.14$, df = 3).

[j] Differences are not significant at the $p \leq .05$ level ($\chi^2 = 72.90$, df = 4). Income was not ascertained for 66 cases in the 1987 survey and thus excluded for the chi-square analysis. All missing income data are allocated in CPS.